

PARTNERING FOR A PROSPEROUS & SECURE FUTURE: THE FEDERAL GOVERNMENT AND RESEARCH UNIVERSITIES

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ASSOCIATION OF AMERICAN UNIVERSITIES

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About AAU and This Paper

The Association of American Universities is a nonprofit association of 59 leading U.S. public and private nonprofit research universities, and two top Canadian universities. Founded in 1900, AAU focuses on issues that are important to research-intensive universities, such as funding for research, research policy, and graduate and undergraduate education. AAU member universities are on the leading edge of innovation, scholarship, and solutions that contribute to the nation's economy, security, and well-being. AAU's 59 U.S. universities award more than one-half of all U.S. doctoral degrees and 55 percent of those in the sciences and engineering.

With the Presidential election two months away, what follows is a set of actions that we believe the President and his Administration can take to advance the partnership between the federal government and research universities – as well as actions that universities themselves need to take to ensure that they are always improving the way they carry out their missions of education, research, and public service.

THE THREE COMPLEMENTARY MISSIONS OF THE RESEARCH UNIVERSITY

Modern research universities, and the partnership between the federal government and those universities, are the product of two landmark events in American history. The first is the Morrill Act, signed 150 years ago by President Lincoln in the depths of the Civil War. This remarkable expression of faith in learning and research established the land-grant university with three primary missions: education, research, and public service.

The second was World War II, when both public and private universities participated in military research, and the war's aftermath, when Vannevar Bush's historic memo to President Harry Truman laid out the model of (1) robust federal investment in basic research, conducted primarily at research universities, and (2) using the research enterprise to educate the next generation of scientists and engineers, thus enabling research to inform teaching and vice versa. Following creation of the National Institutes of Health in the 1940s and the National Science Foundation in 1950, this model took off with the 1957 Russian launch of the Sputnik satellite. It is a model that other nations are racing to duplicate.

Today, the missions of America's research universities, public and private alike, closely reflect those established by the Morrill Act. These extraordinary institutions:

- educate thousands of undergraduate and graduate students to be the next generation of leaders in their professional or academic fields and in their communities;
- conduct groundbreaking research and scholarship that are central to innovation and economic growth, and to advancements in health, technology, energy, national security, and knowledge in the full array of disciplines; and
- are committed to service: by transferring discoveries to the marketplace, by improving education at all levels and in all parts of society, and by contributing to economic development in their states and communities.

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INTRODUCTION

Whoever is elected on November 6, the President and his Administration should continue to strengthen the partnership between the federal government and research universities. The approaching Presidential election presents an opportunity to reflect on this unique partnership. The partnership has served as the foundation for U.S. innovation, economic growth, and prosperity for more than six decades, and holds equal importance for the nation's future. As the National Academies' National Research Council (NRC) stated in its recent report, *Research Universities and the Future of America*, "As America pursues economic growth and other national goals, its research universities have emerged as a major national asset—perhaps even its most potent one. This did not happen by accident; it is the result of forward-looking and deliberate federal and state policies."

Fifty percent of U.S. economic growth has been attributed to technological innovation. Research universities produce and refine the fuel that drives U.S. innovation – new ideas, discoveries, and, above all, human capital. Our undergraduates provide talent, energy, and entrepreneurship to all fields of endeavor; and our graduates with advanced and professional degrees are leaders of their fields, whether in business, science or the arts, and educators of the next generation. The partnership with the federal government is what makes much of this possible: through competitive, merit-based funding of the research enterprise; financial aid for undergraduates, particularly low-income students; support for scholarship in the humanities and the arts, and key tax policies. The states play an important role as well by providing significant support for their public universities.

This is a time of great fiscal challenge for the federal government, as well as the states. But our country cannot hope to achieve long-term prosperity without the solid partnership with research universities that has enabled us to build so much for the American people over generations.

Whoever takes the oath of office on January 20, 2013, will face the daunting challenge and responsibility of securing this nation's future. While other issues may gather more headlines, actions his Administration takes to strengthen and advance the partnership between government and the nation's research universities will be among the most important for achieving long-term prosperity. AAU hopes that our recommendations for federal policies, as well as actions we encourage our universities to take to better fulfill their education, research, and public service missions, can help the President and his Administration build a better America for generations to come.

As policymakers seek to strengthen our system of higher education for the challenges of the 21st century, it is important to keep in mind that the goals of the education our universities provide are not only vocational in nature. Yes, we seek to prepare students to be successful in the workplace, and in many instances provide skills specific to certain professions. But our greater goal is to educate citizens – citizens who strengthen not only their place of work but also their families, their communities, and their country.

Perhaps James Madison said it best when he asked, "What spectacle can be more edifying or more seasonable, than that of liberty and learning, each leaning on the other for their mutual and surest support?"

Thus the breadth of a liberal arts education (of which Madison was a prototypical product), with a focus on imparting knowledge in the sciences, the social sciences, and the humanities, must remain at the core of our educational endeavors. And the nature of liberal arts education, which encourages independent thinking and creativity, contributes to American innovation. That is one reason the world is trying to imitate us.

Likewise, the federal government should competitively award its support for research and scholarship across diverse fields and disciplines. In this way, federal support helps our universities to produce new knowledge and to preserve, enrich, and interconnect accumulated knowledge across many different areas from the humanities to the sciences.

THE FISCAL - AND GENERATIONAL - CHALLENGE

To build a better America for the 21st century, we must first address the challenge of long-term deficits and growing debt, while maintaining the investments that lay the foundation for economic growth and prosperity. The President and Congress must also act to prevent the sequestration now scheduled to take effect under the Budget Control Act, which would be devastating to those investments.

AAU has aggressively supported efforts to reduce budget deficits and get our long-term debt under control, including, most recently, initiating with the Association of Public and Land-grant Universities a letter to the President and congressional leaders from more than 150 university presidents with the following message:

Excessive deficits and debt threaten our nation's economic and national security. They threaten our ability to invest in the future. And efforts to reduce deficits thus far have focused largely on nondefense discretionary spending, the very area of the budget where such investments – in research, in education, in infrastructure, for example – are located.

These measures exacerbate a trend that is now decades old – the shift of resources from the young to the old. We are undermining our future, and if we do not address this problem, we will leave a much weaker country to coming generations.

We support a balanced approach that seriously and thoughtfully addresses entitlement programs, which are a primary source of long-term spending growth, and incorporates substantial tax reform that is designed both to encourage economic growth and to raise revenues needed to reduce the deficit.

We need to reduce deficits to provide a better life for future generations, and for the same reason, we must sustain the nation's investments in the future. In its report, the bipartisan Bowles-Simpson commission stated that “we must invest in education, infrastructure, and high-value research and development to help our economy grow, keep us globally competitive, and make it easier for businesses to create jobs.”

PARTNERING TO CULTIVATE HUMAN CAPITAL

The greatest strength of this nation has always been its people. Research universities play a critical role in educating and training the next generation of leaders in virtually all fields. The federal government plays an important role in this enterprise through the investments it makes in ensuring access to college and graduate education, and supporting research. Universities also have a duty to provide good stewardship and to provide access to students from all economic backgrounds. And U.S. research universities fully understand and embrace their responsibility to ensure that the education they provide continues to be the best the world has to offer.

FULFILLING HUMAN POTENTIAL: Ensuring Access, Regardless of Income

Federal Financial Aid

It is a fundamental responsibility of the federal government, states, and institutions of higher education to ensure that Americans, regardless of their economic status, have the opportunity to attend college and improve their knowledge and skills for the current and future workforce. **The federal government must continue to invest in critical student financial aid funding, the most important being the Pell Grant program, the primary means**

by which more than nine million low-income students attend college. We remain committed to addressing the growing costs of the Pell Grant program in order to place the program on a more sustainable funding path and identifying potential accountability mechanisms for the program, while still protecting access for low-income students. Enhancing the integrity of federal student aid programs and curtailing fraud and abuse are important ways to reduce costs and ensure that federal funds are being well spent. We are concerned about the legislative erosion of the federal student loan programs in order to offset the rising costs of Pell Grants.

Investments in other federal student aid programs that provide grants and work-study to low- and middle-income students are also vital, as most students rely on a combination of financial aid programs to fund their college educations.

College Costs and Student Loan Debt

Americans are rightfully concerned about the cost of a college education and the impact of student loan debt, particularly in today's difficult economic times. AAU universities are committed to keeping costs down by operating as efficiently as possible while maintaining quality. At the same time, there is a direct and inverse relationship between the level of state appropriations and the level of tuition increase. In fact, each dollar cut from state allocations can require more than twice the amount in full published tuition price increases. Our universities support efforts to provide students and families with useful, clear, reliable information about college costs and college affordability. Students and families need to have a full understanding of the actual costs of attending a college or university.

To provide the highest quality education and make it affordable, AAU universities are using a range of cost-saving measures, substantial institutional financial aid beyond that offered by federal and state governments, and creative use of technology. In 2010-2011, for example, AAU universities provided \$1.2 billion in institutional grant aid to first-time, full-time undergraduate students.

AAU universities continue to seek new ways to reduce their operating budgets in order to increase productivity and minimize tuition increases, though it is important to recognize that cost-cutting without regard for quality is not a productivity gain. While new information technology can help to reduce operating costs, economists Robert Archibald and David Feldman of the College of William and Mary pointed out in *The Anatomy of College Tuition*, published by the American Council on Education, that the primary effect of technological change in higher education thus far has been to increase costs. They also note that service industries such as higher education have slower rates of productivity growth than manufacturing industries, so their costs generally exceed overall inflation. The increase in the cost of hiring highly educated workers since the 1980s has accentuated this problem. While many universities are experimenting with different delivery systems of education, including online education, it remains to be seen, again, whether quality and cost reduction in this area can be combined. It should be clear, however, that research universities have created this technology and are innovators in the field, and they are committed to advancing it further to achieve productivity gains while maintaining quality.

It is important to point out that numerous studies have shown that one thing that does not drive up tuition prices at public and private nonprofit colleges and universities is increased federal investments in student aid.

With regard to student debt, AAU universities are committed to helping students make better borrowing choices and reduce their student loan debt. Data show that debt among college graduates varies significantly by sector: at public and private nonprofit research and doctoral universities, nearly 40% of new graduates have no debt, and nearly 80% have \$25,000 or less in debt.

The federal government has a role to play in strengthening loan consolidation, repayment, and forgiveness options, as well as deferrals and forbearances, to prevent students and their families from over-borrowing and to help them better manage their debt and avoid default. Our nation has a vested interest in students and families borrowing wisely and being able to repay their loans.

ATTRACTING AND DEVELOPING TALENT TO COMPETE IN A GLOBAL ECONOMY

U.S. research universities have long been a magnet for the world's top talent, some of it home-grown, and some of it from around the globe. It is essential to the nation's global competitiveness that they remain so, both by ensuring that U.S. undergraduate and graduate education remains the world's best and by ensuring that we maintain and strengthen the pipeline of U.S. and international talent to these universities.

Support for Graduate Education

Our nation's unique system of combining graduate education with cutting-edge research is a core strength and competitive advantage of the American innovation system. Enabling research universities to maintain high-quality graduate education programs is critical to our nation's future health and economic and national security. **These institutions must become more efficient in educating graduate students by increasing completion rates and reducing time-to-degree for doctoral study, as well as by strengthening pathways for students in a broad range of careers, not just those in academia. At the same time, the federal government should enhance its support of graduate education by expanding fellowship and traineeship programs in selected fields and assuring that stipends and institutional allowances in all federal programs that support graduate education are sufficient to meet the costs of education.**

Critical to the success of these efforts is the need for federal agencies to more broadly support training for career pathways both within and outside of academia. Both the National Institutes of Health and the Council of Graduate Schools released reports in 2012 encouraging broader definitions of successful outcomes in the fields of science, technology, engineering, and mathematics (STEM), and greater opportunities for young scientists to pursue a variety of STEM career paths. **Universities and their faculties need to do a better job of promoting non-academic career paths for graduate students. At the same time, the President and his Administration should encourage widespread adoption among the major federal research agencies of career development initiatives designed to supplement and expand fellowships and traineeships that help to facilitate such efforts.**

Support for International Education, Foreign Language Training

AAU universities are committed to strengthening the foreign language and international education pipeline to meet the nation's need for a steady supply of graduates who can engage internationally in the educational, governmental, and business sectors. But with documented shortages of language-proficient workers hindering the work of national security agencies, it is time for a fundamental national examination of, and funding strategy for, foreign language training and international education.

Though modestly funded from the start and cut further in recent years, the Department of Education's Title VI/Fulbright-Hays programs are the federal government's most comprehensive programs for supporting instruction in less-commonly taught languages, particularly from regions of national strategic importance; researching issues important to our national security; and providing global learning experiences for American students. Students participating in these programs have gone on to distinguished careers in the U.S. military, intelligence agencies, and our diplomatic corps. Federal support for the Title VI/Fulbright-Hays programs leverages additional investments from institutions of higher education and other non-federal entities. Federal funding is particularly important for the National Resource Centers, which serve as critical national resources for teaching modern foreign languages across the nation.

Improving STEM Education – The Role of Research Universities

The need to improve science, technology, engineering, and mathematics (STEM) education at all levels is not a

new issue, but it has taken on new resonance for a variety of reasons. STEM fields are critical to generating the new ideas, technologies, companies, and industries that drive our nation's competitiveness and STEM occupations are continuing to grow, particularly for those with postsecondary degrees. However, a significant percentage of entering college freshmen planning to major in a STEM field switch to non-STEM majors by the time they graduate, and basic scientific literacy among many non-STEM majors is inadequate. This has led to shortages in American-born students who can fill critical science and engineering positions in national defense and homeland security fields that require U.S. citizenship to obtain security clearances. Moreover, our inability to keep American students in STEM fields has forced research universities to grow increasingly dependent upon foreign students to fill STEM slots in graduate programs.

Several high-level reports have identified deficiencies in undergraduate STEM education and solutions for improving teaching and learning. New scholarship has led to the development of evidence-based teaching techniques that have been demonstrated to be more engaging and more effective at helping students learn.

In 2011, AAU launched a five-year initiative with the intent of improving the quality of undergraduate STEM teaching and learning at research universities. The overarching goal of the initiative is to influence the culture of STEM departments at AAU universities so that they will use sustainable, student-centered, evidence-based, active learning pedagogy in their classes, particularly at the freshman and sophomore levels. We are preparing a framework that can be used by our universities to ensure that they are utilizing the most effective teaching techniques in introductory STEM classes. We intend to test this framework at six to ten demonstration projects at AAU universities. These demonstration projects will be the first phase of an effort to encourage broad-based, systemic reform of undergraduate teaching practices at AAU research universities and beyond.

At the undergraduate level, enhancing K-12 STEM teacher preparation is also imperative for building and sustaining a diverse, STEM-literate workforce and population. American students continue to underperform on international assessments of science and mathematics knowledge and there is a shortage of qualified, well-trained K-12 STEM teachers. The Association of Public and Land-grant Universities (APLU) has launched the Science and Math Teacher Imperative, a major effort to address this problem by enhancing K-12 STEM teacher preparation.

The President and his Administration should support and encourage the development of efforts like AAU's STEM Undergraduate Education Initiative and the APLU Science and Math Teacher Imperative, which are working to cultivate talent in the STEM fields, including broadening participation among women and under-represented minorities.

Turning Immigrant Talent into American Talent

While the U.S. must expand its ability to cultivate homegrown talent, particularly in STEM fields, this nation of immigrants has always thrived on the infusion of talented men and women from other countries who have grown up here or chosen to study, work, and live here. The nation's research universities have served as magnets for this talent, and our country has reaped the extraordinary benefits of their contributions.

We believe the nation should enact comprehensive immigration reform and hope this will be a priority for the President and his Administration. In the absence of legislative action on comprehensive immigration reform, the research university community has worked in partnership with high-technology companies to support high-skilled immigration reform legislation. **We support legislation to gradually phase out the seven-percent-per-country cap limitation for employment-based green cards and replace it with a first-come, first-serve system for qualified highly-skilled immigrants.** This would enable immigrants from countries that send large numbers of talented immigrants, such as China and India, to obtain a green card without having to wait a decade or longer. **We also encourage the Administration to work with Congress to enact a new immigration law that establishes a clear pathway to citizenship for advanced STEM degree graduates from U.S. colleges and universities. We need to ensure that the most talented foreign-born, U.S.-educated individuals have the opportunity to become U.S. citizens and contribute to America's economy and workforce.**

In addition, the enactment of the Development, Relief and Education for Alien Minors (DREAM) Act is a priority for AAU. The removal of barriers to higher education for certain undocumented students would not only help these students achieve their full academic potential but also provide them with the knowledge and skills to become full participants in the American workforce and contributors to society. As much as they would benefit, our country would benefit even more.

State governments around the country have enacted laws that enable students who graduate from high schools in the state to qualify for in-state tuition at public colleges and universities and be eligible for state-funded scholarships. **In 2011, AAU issued a statement that applauds state laws that allow undocumented students who meet state requirements to pay in-state tuition and to be eligible for state-funded scholarships and student financial aid. AAU strongly encourages the Administration to include a DREAM Act measure in comprehensive immigration reform or pursue it separately.**

Finally, the NRC report on research universities underscores the value of international students and scholars to the nation's research enterprise. This report addresses the need for efficient and effective visa processing for students and scholars and the need to streamline the permanent residency process for advanced degree graduates from U.S. colleges and universities. **AAU urges the Administration to improve visa processing administratively while working legislatively to streamline the path to permanent residency and ultimately citizenship.**

PARTNERING TO FOSTER NEW IDEAS AND CUTTING EDGE DISCOVERIES

The nation's research universities are a primary source of the ideas and discoveries that fuel American innovation not only in science and engineering and education but in the full range of human endeavor, from business to the arts, from health care to public policy, and to national security. This is an essential element of the partnership between government and research universities, as only the federal government has the resources and broad national perspective to help this human creativity and fundamental exploration blossom.

Why the Federal Government Sponsors Most University Basic Research

The federal government funds approximately 60 percent of university basic research. The question is sometimes raised: why doesn't the private sector pay for this research?

First, companies do invest substantial resources in research and development. However, as the National Research Council pointed out in its 2005 report, *Rising Above the Gathering Storm*, these resources go "overwhelmingly to activities that are near-term and incremental rather than to long-term or discovery-oriented research." Among the explanations offered by the report are that "Wall Street analysts increasingly focus on quarterly financial results and assign little value to long-term (and therefore risky) research investments or to social returns," and that "companies cannot always fully capture a return that justifies long-term research with results that often spill over to other researchers, sometimes including those of competitors."

This is why there has long been bipartisan support for the federal investment in university basic research, and the investment has paid grand dividends for the nation.

Scientific Research

Bipartisan support for the nation's investment in scientific research since World War II has paid extraordinary dividends in combating disease, developing new technologies that have grown our economy and changed the way we live, and protecting our nation and its fighting men and women. Other nations are racing to catch up, pouring resources into research and education. They and the world will reap the benefit of those investments. However, as Bill Green, Executive Chairman of Accenture, has said, "All these other countries—India, China, Russia, you name it—they aspire to be like us because they realize how we got where we got. It's because of the national research infrastructure and ecosystem we have. They aspire to that and they're going to have that. But we've got to be gone when they get there."

The NRC report on the future of U.S. research universities, of which Mr. Green was a coauthor, states it best:

Over the next decade, as the economy improves, the federal government should invest in basic research and graduate education sufficient to produce the new knowledge and educated citizens the nation needs to reach its goals. As a core component of a national plan to raise total national R&D funded by all sources — government, industry, and philanthropy — to 3 percent of gross domestic product, Congress and the administration should provide full funding of the amount authorized by the America COMPETES Act, doubling the level of basic research [funded] by the National Science Foundation, National Institute of Standards and Technology, and the Department of Energy's Office of Science. Investment should also be sustained in other key areas, such as biomedical research... [A] portion of the investment should be directed to high-risk, innovative, and unconventional research.

We agree. These goals are bipartisan. And the general objective was also expressed by the Bowles-Simpson debt commission. **We hope that the traditional bipartisan support for basic scientific research in all disciplines, from biomedical to physical, from space science to social science, will continue into the future and that the specific goals asserted by the NRC can be attained.**

The President and Congress are responsible for ensuring that appropriate policies and procedures are in place to determine the allocation of scarce funds. By protecting the scientific merit review system, where research proposals undergo rigorous review for scientific quality, the President and Congress can help ensure that only high-quality research is funded with federal dollars and thus protect taxpayer investments. **The President should take a strong stand against allocation basic research funds by means other than merit review.**

Humanities

A robust humanities education—which includes the study of languages, literature, history, philosophy, religion, and the arts – is critical to a globally competitive workforce. From the basic building blocks of early education to the highest levels of academic attainment, humanities fields provide individuals with skills, competencies, and expertise needed by the government, business, and the nonprofit sector. More than 2.5 million Americans are using their humanities education in such areas as advertising/marketing, public administration, law, national security/intelligence, international trade, arts/entertainment, and health. Our country's success in meeting economic, global, and national security challenges depends on understanding not only technological and scientific complexities, but also larger social, cultural, and ethical issues.

As the only federal agency tasked with advancing U.S. achievement over the entire range of academic fields in the humanities, the National Endowment for the Humanities (NEH) provides critical competitive grant support to educational institutions and scholars, as well as formula funding for state humanities councils. NEH programs help sustain the vitality of humanities education and scholarship and, thus, help ensure that America can compete successfully in a global economy and advance sound public policy to address the challenges of the 21st century. **AAU encourages the Administration to reinvest in competitive grants at NEH, which have been disproportionately**

cut over the past decade, and to provide new opportunities for collaboration among students and faculty in the humanities, similar to those in the sciences.

A REGULATORY AND LEGAL FRAMEWORK THAT ENCOURAGES INNOVATION

Funding is only one way in which government interacts with research universities. Research universities are subject to a complex regimen of laws and regulations governing research and other areas. It is important that those laws and regulations be targeted carefully to achieve their goals of ensuring accountability and compliance efficiently without imposing unnecessary costs on institutions.

Regulatory Reform

While many federal regulations and reporting requirements involving universities are well intentioned and were implemented for valid purposes, the cumulative growth in such regulations has increased costs and hampered universities' ability to efficiently carry out their research and education missions. A 2007 study by the Federal Demonstration Partnership showed that 42 percent of faculty time in the conduct of federally funded research was being spent on administrative duties. It is reasonable to attribute some of this administrative time to compliance with federal regulations.

We urge the Administration to harmonize, streamline, and, where possible, eliminate unnecessary and duplicative regulations and reporting requirements on U.S. research universities. A number of regulatory reform proposals and specific research regulations that should be targeted by the Administration are identified by the National Research Council report on research universities. We wish to work with the Administration on reforming regulations and reporting requirements to make them more efficient and effective, and less costly.

Economic Development and Technology Transfer

As a part of their public service mission, U.S. research universities are committed to enhancing their efforts to promote innovation, entrepreneurship, and the commercialization of research results to support economic growth. In April 2011, 140 university presidents, chancellors, and higher education association leaders sent a letter to the Secretary of Commerce outlining steps they would take to work with industry, private foundations, venture capitalists, and local, state, and federal governments to improve their technology commercialization processes. Their pledge included encouraging entrepreneurship and expanding and promoting policies and programs that support regional economic development. The higher education leaders also outlined steps that could be taken by the Administration and Congress to help achieve these goals. Since then, many of these universities have announced specific actions they have taken to follow through on that commitment.

The Administration can boost American innovation by assisting universities in fulfilling their commitment to engaging in such activities. To this end, the Administration should:

- **maintain the current legal framework for university technology transfer, as set forth by the Bayh Dole Act of 1980;**
- **develop new proof-of-concept and gap funding programs that support the translation of ideas generated with federally funded research into viable commercial products; and**
- **reject proposals that would allow faculty to be “free agents” and directly commercialize federal research results; the National Research Council reported in a 2010 analysis that there was no evidence that such**

proposals would accelerate innovation, but that they would create significant public accountability and conflict-of-interest challenges for universities.

Scholarly Publishing

The research university mission of discovery and dissemination of new knowledge is carried out predominantly through publication in peer-reviewed scholarly journals. The dramatic advances in digital communication capabilities can increase the pace and breadth of access to scholarly publications, as demonstrated by the National Institutes of Health's highly effective Public Access Policy and its PubMed Central. The federal government and the university community have a shared interest in expanding public access to the results of federally funded research.

The Federal Research Public Access Act calls for all federal research funding agencies providing \$100 million or more annually in research funding – currently 11 agencies – to provide comparable public access to the results of research they fund. If these agencies all build and interconnect public access repositories of the peer-reviewed articles developed from the research they fund, the results of the federal government's investment in university research could be freely accessed by the public and would provide an extraordinarily valuable, interoperable set of research repositories for use by scientists and scholars across all disciplines. **We encourage the Administration to pursue legislation to achieve these goals.** Public-private collaborations among government agencies, publishers, universities and their libraries could expand this set of repositories by interconnecting public and private research databases. Thoughtful international discussions are being carried out, developing the framework for expanded public access to research. **We encourage the Administration to continue to develop such policies for expanding access to both domestic and international research repositories, as called for under the America COMPETES Act.**

ENCOURAGING OTHER SOURCES OF SUPPORT FOR RESEARCH UNIVERSITIES

The Role of the States

The states play a critical role in sustaining broad access to higher education, including at the nation's flagship public research universities. Unfortunately, state cuts in appropriations to public research universities are estimated to have averaged 25 percent between 2002 and 2010, and range as high as 50 percent. As noted earlier, there is a clear inverse relationship between the level of state appropriations and the level of tuition increases.

While state governments are facing great fiscal challenges, they need to consider the unwelcome consequences for education, research, and economic competitiveness of their continuing disinvestment in public research universities. Along with seeking ways to bolster and leverage support of their flagship campuses, states should consider reducing the numerous regulatory constraints they impose on these institutions and give them the autonomy they need to better compete and fulfill their educational, research, and service missions.

We hope that the Administration will seriously consider initiatives to encourage states to live up to their obligation to support public higher education. Such initiatives could include federal-state matches that require maintenance of effort by the states.

Tax Policies to Aid Students and Families

Tax reform is an essential part of the solution to our nation's fiscal and global competitiveness challenges. While important decisions about tax rates on individuals and businesses will rightfully constitute much of the tax reform policy discussion, other significant tax issues will also be considered that will have consequences – intended or

otherwise – for our nation’s economic competitiveness.

It is well understood that our nation’s competitiveness depends upon a highly educated citizenry and well-trained workforce. That is why the federal government supplements grants and loans with tax measures to help students afford college. **The Administration should seek to extend and improve existing tax policies that aid students and families in financing higher education. Chief among these should be the permanent extension of the American Opportunity Tax Credit and its consolidation with the Lifetime Learning Credit and the deduction for undergraduate tuition. Additionally, Section 127 employer-provided education assistance should be permanently extended for undergraduate and graduate education so that employers can continue to provide their employees with up to \$5,250 in tax-free educational assistance benefits.**

As the states have disinvested in higher education, public and private research universities have increasingly relied upon philanthropy to cope with growing enrollments, the increasing need to provide generous financial aid, the rising costs of delivering high quality education, and the need to renew infrastructure and build new classrooms and laboratories. Philanthropy is an especially important source of funds for private and public universities to provide grants to low- and middle-income students. It enables a number of AAU institutions to maintain “need-blind” admissions. The federal income tax deduction for charitable gifts is a vital incentive to individuals, families, and businesses to make donations that make it possible for universities to fulfill all of their educational, research, and public service missions. **The President and his Administration should seek to preserve strong tax incentives for charitable giving, including the deduction for charitable contributions and the IRA Charitable Rollover.**

Finally, tax-exempt bonds are an important financing tool for universities to renew aging campus infrastructure and build cutting-edge classrooms and laboratories. Research universities are increasingly partnering with industry and small technology companies to address tough science and technology challenges, but restrictions on the use of facilities financed by tax-exempt bonds are a barrier to innovations from these partnerships. **The President and his Administration should seek to remove or ease restrictions on tax-exempt bonds that unduly restrict innovative partnerships between universities and businesses.**

CONCLUSION

As the President and his Administration face the economic and international competitiveness challenges ahead, they should look to research universities to play an important role in providing the ideas, talented individuals, and scientific innovations to help address them. As the NRC report on research universities says of the importance of the federal government-research university partnership: “We believe that America’s research universities are today a key asset for our nation’s future. They are so because of the considered and deliberate decisions made in the past by policymakers, even in difficult times. Our future now depends on the willingness of our current policymakers to follow their example and make the decisions that will allow us to continue to compete, prosper, and shape our destiny.”

APPENDIX: AAU POLICY RECOMMENDATIONS AND UNIVERSITY ACTIONS

Following is a list of AAU recommendations for federal policies and university actions contained in this paper.

THE FISCAL - AND GENERATIONAL - CHALLENGE

- We support a balanced approach to deficit reduction that seriously and thoughtfully addresses entitlement programs, which are a primary source of long-term spending growth, and incorporates substantial tax reform that is designed both to encourage economic growth and to raise revenues needed to reduce the deficit.
- We need to reduce deficits to provide a better life for future generations, and for the same reason, we must sustain the nation's investments in the future. In its report, the bipartisan Bowles-Simpson commission stated that "we must invest in education, infrastructure, and high-value research and development to help our economy grow, keep us globally competitive, and make it easier for businesses to create jobs."

PARTNERING TO CULTIVATE HUMAN CAPITAL

- The federal government must continue to invest in critical student financial aid funding, the most important being the Pell Grant program, the primary means by which more than nine million low-income students attend college. We remain committed to addressing the growing costs of the Pell Grant program in order to place the program on a more sustainable funding path and to identifying potential accountability mechanisms for the program, while still protecting access for low-income students.

- Investments in other federal student aid programs that provide grants and work-study to low-and middle-income students are also vital important, as most students rely on a combination of financial aid programs to fund their college educations.
- The federal government has a role to play in strengthening loan consolidation, repayment, and forgiveness options, as well as deferments and forbearances, to prevent students and their families from over-borrowing and to help them better manage their debt and avoid default.

ATTRACTING AND DEVELOPING TALENT TO COMPETE IN A GLOBAL ECONOMY

- Research universities must become more efficient in educating graduate students by increasing completion rates and reducing time-to-degree for doctoral study, as well as by strengthening pathways for students in a broad range of careers, not just those in academia. At the same time, the federal government should enhance its support of graduate education by expanding fellowship and traineeship programs in selected fields and assuring that stipends and institutional allowances in all federal programs that support graduate education are sufficient to meet the costs of education.
- Universities and their faculties need to do a better job of promoting non-academic career paths for graduate students. At the same time, the President and his Administration should encourage widespread adoption among the major federal research agencies of career development initiatives designed to supplement and expand fellowships and traineeships that help to facilitate such efforts.
- With documented shortages of language-proficient workers hindering the work of national security agencies, it is time for a fundamental national examination of, and funding strategy for, foreign language training and international education.
- In 2011, AAU launched a five-year initiative with the intent of improving the quality of undergraduate STEM teaching and learning at research universities. The President and his Administration should support and encourage the development of efforts like AAU's STEM Undergraduate Education Initiative and the APLU Science and Math Teacher Imperative, which are working to cultivate talent in the STEM fields, including broadening participation among women and under-represented minorities.
- We support legislation to gradually phase out the seven-percent-per-country cap limitation for employment-based green cards and to replace it with a first-come, first-serve system for qualified highly skilled immigrants.
- We encourage the Administration to work with Congress to enact a new immigration law that establishes a clear pathway to citizenship for advanced STEM degree graduates from U.S. colleges and universities. We need to ensure that the most talented foreign-born, U.S.-educated individuals have the opportunity to become U.S. citizens and contribute to America's economy

and workforce.

- In 2011, AAU issued a statement that applauds state laws that allow undocumented students who meet state requirements to pay in-state tuition and to be eligible for state-funded scholarships and student financial aid. AAU strongly encourages the Administration to include a DREAM Act measure in comprehensive immigration reform or pursue it separately.
- AAU urges the Administration to improve visa processing administratively for international students and scholars, while working legislatively to streamline the path to permanent residency and ultimately citizenship.

PARTNERING TO FOSTER NEW IDEAS AND CUTTING-EDGE DISCOVERIES

- We support the following recommendation from the National Research Council report, Research Universities and the Future of America:

Over the next decade, as the economy improves, the federal government should invest in basic research and graduate education sufficient to produce the new knowledge and educated citizens the nation needs to reach its goals. As a core component of a national plan to raise total national R&D funded by all sources — government, industry, and philanthropy — to 3 percent of gross domestic product, Congress and the administration should provide full funding of the amount authorized by the America COMPETES Act, doubling the level of basic research [funded] by the National Science Foundation, National Institute of Standards and Technology, and the Department of Energy's Office of Science. Investment should also be sustained in other key areas, such as biomedical research... [A] portion of the investment should be directed to high-risk, innovative, and unconventional research.

- We hope that the traditional bipartisan support for basic scientific research in all disciplines, from biomedical to physical, from space science to social science, will continue into the future and that the specific goals asserted by the NRC can be attained.
- The President should take a strong stand against basic research funds allocated by means other than merit review.
- AAU encourages the Administration to reinvest in competitive grants at the National Endowment for the Humanities, which have been disproportionately cut over the past decade, and to provide new opportunities for collaboration among students and faculty in the humanities, similar to those in the sciences.

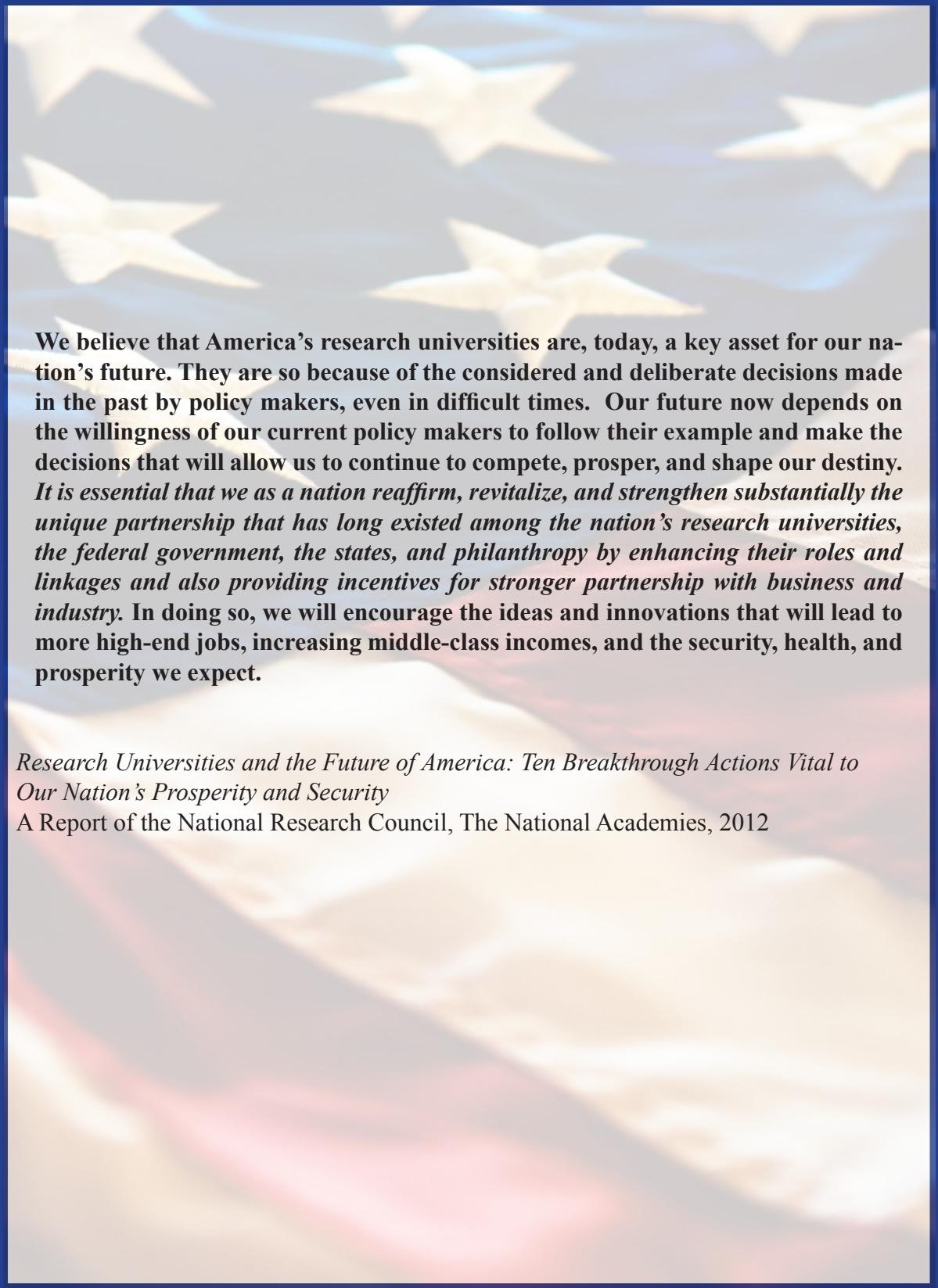
A REGULATORY AND LEGAL FRAMEWORK THAT ENCOURAGES INNOVATION

- We urge the Administration to harmonize, streamline, and, where possible, eliminate unnecessary and duplicative regulations and reporting requirements on U.S. research universities.

- The Administration can boost American innovation by assisting universities in fulfilling their commitment to promote innovation, entrepreneurship, and the commercialization of research results to support economic growth. To this end, the Administration should:
 - ◊ maintain the current legal framework for university technology transfer, as set forth by the Bayh-Dole Act of 1980;
 - ◊ develop new proof-of-concept and gap funding programs that support the translation of ideas generated with federally funded research into viable commercial products; and
 - ◊ reject proposals that would allow faculty to be “free agents” and directly commercialize federal research results.
- We encourage the Administration to pursue legislation that calls on agencies to build and inter-connect public access repositories of the peer-reviewed articles developed from the research they fund. Under such legislation, the results of the federal government’s investment in university research could be freely accessed by the public and would provide an extraordinarily valuable, interoperable set of research repositories for use by scientists and scholars across all disciplines.
- We encourage the Administration to continue to develop policies for expanding access to both domestic and international research repositories, as called for under the America COMPETES Act.

ENCOURAGING OTHER SOURCES OF SUPPORT FOR RESEARCH UNIVERSITIES

- We hope that the Administration will seriously consider initiatives to encourage states to live up to their obligation to support public higher education. Such initiatives could include federal-state matches that require maintenance of effort by the states.
- The Administration should seek to extend and improve existing tax policies that aid students and families in financing higher education. Chief among these should be the permanent extension of the American Opportunity Tax Credit, as well as its consolidation with the Lifetime Learning Credit and the deduction for undergraduate tuition. Additionally, Section 127 employer-provided education assistance should be permanently extended for undergraduate and graduate education so that employers can continue to provide their employees with up to \$5,250 in tax-free educational assistance benefits.
- The President and his Administration should seek to preserve strong tax incentives for charitable giving, including the deduction for charitable contributions and the IRA Charitable Rollover.
- The President and his Administration should seek to remove or ease restrictions on tax-exempt bonds that unduly restrict innovative partnerships between universities and businesses.



We believe that America's research universities are, today, a key asset for our nation's future. They are so because of the considered and deliberate decisions made in the past by policy makers, even in difficult times. Our future now depends on the willingness of our current policy makers to follow their example and make the decisions that will allow us to continue to compete, prosper, and shape our destiny. *It is essential that we as a nation reaffirm, revitalize, and strengthen substantially the unique partnership that has long existed among the nation's research universities, the federal government, the states, and philanthropy by enhancing their roles and linkages and also providing incentives for stronger partnership with business and industry.* In doing so, we will encourage the ideas and innovations that will lead to more high-end jobs, increasing middle-class incomes, and the security, health, and prosperity we expect.

Research Universities and the Future of America: Ten Breakthrough Actions Vital to Our Nation's Prosperity and Security

A Report of the National Research Council, The National Academies, 2012